

CLAIMS

1. An imaging device, comprising:
a delivery device shaped and dimensioned for accessing a predetermined body cavity or lumen;
an OCT system linked to the delivery device; and
a nuclear imaging system linked to the delivery device.
2. The imaging device according to claim 1, further including a control assembly linked to the OCT system and the nuclear imaging system, the control assembly includes processing means adapted for gathering information from the OCT system and the nuclear imaging system and creating imaging information used in the assessment of the body cavity or lumen into which the delivery device is placed.
3. The imaging device according to claim 1, wherein the OCT system includes scanning components housed within the delivery device and an OCT source assembly remote from the delivery device.
4. The imaging device according to claim 3, wherein the scanning components of the OCT system include an optical fiber extending from the OCT source assembly through the length of the catheter, a lens secured to a distal end of the optical fiber and a rotating right angle prism positioned for receiving light from the lens.
5. The imaging device according to claim 4, wherein rotation of the right angle prism is controlled by a motor coupled to the right angle prism.
6. The imaging device according to claim 5, wherein the motor is housed within a distal end of the delivery device.

7. The imaging device according to claim 5, wherein the motor is positioned adjacent a proximal end of the delivery device.
8. The imaging device according to claim 1, wherein the nuclear imaging system includes scintillating fibers positioned adjacent a distal end of the delivery device.
9. The imaging device according to claim 8, wherein the scintillating fibers are sheathed in the area adjacent a proximal end of the delivery device.
10. The imaging device according to claim 8, wherein two to six scintillating fibers are positioned adjacent the distal end of the delivery device and are adapted for determining the radial position of a radiation source.
11. The imaging device according to claim 8, wherein the scintillating fibers are coupled to a proximal end of the delivery device by optical fibers extending from the scintillating fibers to the proximal end of the delivery device.
12. A method for imaging body lumens or cavities, comprising the following steps:
 - inserting a delivery device to a predetermined location within a body previously marked with radioactive markers, the delivery device including an OCT system linked to the delivery device and a nuclear imaging system linked to the delivery device;
 - scanning the predetermined location with the OCT system for obtaining a high resolution image and sensing the radioactive markers with the nuclear imaging system to obtain a high contrast image of the predetermined location.
13. The method according to claim 12, further including the step of processing information from the OCT system and the nuclear imaging system and creating imaging information used in the assessment of the body cavity or lumen into which the delivery device is placed.

14. The method according to claim 12, wherein the predetermined location is vessels of the cardiac system.
15. The method according to claim 12, wherein the predetermined location is chosen from the group consisting of the cardiac system, the gastrointestinal system and the pulmonary system.
16. The method according to claim 12, wherein the nuclear imaging system includes at least one scintillating fiber positioned adjacent a distal end of the delivery device.
17. The method according to claim 16, wherein the scintillating fiber is sheathed in the area adjacent a proximal end of the delivery device.
18. The method according to claim 16, wherein two to six scintillating fibers are positioned adjacent the distal end of the delivery device and are adapted for determining the radial position of a radiation source.
19. The method according to claim 16, wherein the scintillating fiber is coupled to a proximal end of the delivery device by an optical fiber extending from the scintillating fiber to the proximal end of the delivery device.